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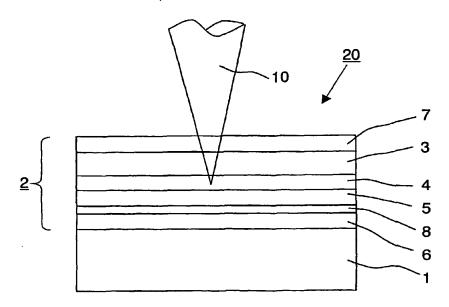
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[Continued on next page]

(54) Title: REWRITALBE OPTICAL DATA STORAGE MEDIUM AND USE OF SUCH A MEDIUM



(57) Abstract: A rewritable optical data storage medium (20) for high-speed recording by means of a focused radiation beam (10) is described. The medium (20) comprises a substrate (1) carrying a stack (2) of layers. The stack (2) comprises a first dielectric layer (3), a second dielectric layer (5), and a recording layer (4) of a phase-change material of an alloy comprising Sb and Te. The recording layer (4) is interposed between the first dielectric layer (3) and the second dielectric layer (5). The alloy additionally contains 2 - 10 at.% of Ga, by which a significant improvement of the maximum data rate during direct overwrite is achieved. By furthermore adding 0.5 - 4.0 % of Ge to the alloy the archival life stability is enhanced.

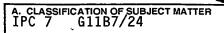




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Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

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C. DOCUM	ENTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Ρ,Χ	EP 1 296 315 A (RICOH) . 26 March 2003 (2003-03-26) page 7, line 42 - line 46; claims 1,3,5 page 7, line 52	1-6,9,10
Α	EP 1 172 811 A (MATSUSHITA ELECTRIC) 16 January 2002 (2002-01-16) page 8, line 37 - line 41; claims 1,6,16	1
A	DATABASE WPI Section Ch, Week 200058 Derwent Publications Ltd., London, GB; Class G06, AN 2000-604338 XP002257067 & JP 2000 190637 A (VICTOR), 11 July 2000 (2000-07-11) abstract	1
	-/	·
ε/χ . Furti	ner documents are listed in the continuation of box C:	nembers are listed in annex.
"A" docume consid "E" earlier of filing docume which citation "O" docume other r	or priority date and cited to understand invention document but published on or after the international ate cannot be consider involve an invention is cited to establish the publication date of another or of ther special reason (as specified) and referring to an oral disclosure, use, exhibition or or priority date and cited to understand invention "X" document of particul cannot be consider involve an inventive "Y" document of particul cannot be consider involve an inventive or or other special reason (as specified)	ished after the international filing date not in conflict with the application but I the principle or theory underlying the lar relevance; the claimed invention red novel or cannot be considered to be step when the document is taken alone lar relevance; the claimed invention red to involve an inventive step when the ned with one or more other such docunation being obvious to a person skilled

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Patent documen cited in search rep		Publication date		Patent family member(s)		Publication date	
EP 1296315		26-03-2003	JP JP JP CN EP US	2003100020 2003157541 2003228847 1410972 1296315 2003058763	A A A A2	04-04-2003 30-05-2003 15-08-2003 16-04-2003 26-03-2003 27-03-2003	
EP 1172811	A	16-01-2002	CN EP JP US	1345053 1172811 2003016687 2002024913	A2 A	17-04-2002 16-01-2002 17-01-2003 28-02-2002	**, .
JP 20001906	537 A	11-07-2000	NONE				
US 6387467	B1	14-05-2002	JP	2002074748	Α	15-03-2002	